

U.S. Patent Application Serial No. 10/809,924  
Amendment filed September 12, 2005  
Reply to OA dated March 11, 2005

**REMARKS:**

Claims 1-10 are currently pending. Claims 1-6 are currently being considered, of which claim 1 has been amended. Claims 7-10 have been withdrawn from consideration.

Claims 1 and 4 stand rejected under 35 USC 103(a) as obvious over USP 5,550,101 (**Nagata**) in view of either “Investigation of Ramp-type Josephson Junctions with Surface-modified Barriers” (**Soutome**) or USP 5,945,383 (**Hunt**).

Claims 2, 3, 5, and 6 stand rejected under 35 USC 103(a) as obvious over **Nagata** in view of either **Soutome** or **Hunt**, and further in view of either USP 5,464,813 (**Hascicek**) or USP 5,400,026 (**Bradley**).

Claim 4 stands rejected under 35 USC 103(a) as obvious over **Nagata** in view of either **Soutome** or **Hunt**, and further in view of USP Publication 2004/0134967 (**Moeckly**).

Claims 5 and 6 stand rejected under 35 USC 103(a) as obvious over **Nagata** in view of either **Soutome** or **Hunt** and **Hascicek** or **Bradley**, and further in view of **Moeckly**.

Applicants respectfully traverse the above rejections.

U.S. Patent Application Serial No. **10/809,924**  
Amendment filed September 12, 2005  
Reply to OA dated March 11, 2005

**Nagata** discloses that the superconducting magnetoresistive element is constituted from a plurality of superconducting portions 13a having a high critical current density and a plurality of weak-coupling portions 13b having a low critical current density, the superconducting portions 13a and the weak-coupling portions 13b being provided on a substrate 10 alternately (column 3, line 60 to column 4, line 2). **Nagata** also suggests a superconducting body having Josephson junctions.

However, **Nagata** does not disclose ramp-edge Josephson junctions having a plurality of slopes.

**Hunt, Moeckly, and Soutome** teach ramp-edge Josephson junctions. However, each of them merely discloses ramp-edge Josephson junctions in one direction of slope.

**Soutome, Hunt, Hascicek, Bradley, and Moeckly**, alone or in combination, fail to remedy the deficiencies of **Nagata**.

**Nagata, Soutome, Hunt, Hascicek, Bradley, and Moeckly**, alone or in combination, fail to describe, teach, or suggest the following features of claim 1: “a plurality of ramp-edge Josephson junctions having plural slopes in different directions formed on said substrate, wherein said plurality of ramp-edge Josephson junctions include at least two ramp-edge Josephson junctions having

U.S. Patent Application Serial No. **10/809,924**  
Amendment filed September 12, 2005  
Reply to OA dated March 11, 2005

different critical current densities to one another, in accordance with the direction of said slopes", in combination with the other claimed features.

In view of the aforementioned amendments and accompanying remarks, all claims currently being considered are respectfully believed to be in condition for allowance, which action, at an early date, is respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

U.S. Patent Application Serial No. **10/809,924**  
Amendment filed September 12, 2005  
Reply to OA dated March 11, 2005

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS,  
HANSON & BROOKS, LLP



Darren R. Crew  
Attorney for Applicants  
Reg. No. 37,806

DRC/ljf  
Atty. Docket No. **040157**  
Suite 1000  
1725 K Street, N.W.  
Washington, D.C. 20006  
(202) 659-2930



**23850**

PATENT TRADEMARK OFFICE

Enclosure: Petition for Extension of Time